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EXAMINER	
WANG, BEN C	

ART UNIT	PAPER NUMBER
2192	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/807,465	RUHE, GUENTHER H.	
	Examiner	Art Unit	
	BEN C. WANG	2192	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *14 January 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-22* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-22* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. Applicant's amendment dated January 14, 2008, responding to the Office action mailed October 15, 2007 provided in the rejection of claims 1-22.

Claims 1-22 remain pending in the application and which have been fully considered by the examiner.

Applicant's arguments with respect to claims rejection have been fully considered but are moot in view of the new grounds of rejection – see *Carlshamre_Two, Harman et al., and Lu et al.* - arts made of record, as applied hereto.

Claim Rejections – 35 USC § 101

35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

2. Claims 1-22 are rejected under 35 U.S.C 101 because the claims are directed to non-statutory subject matter.

3. **As to claim 1**, the claim presently recites "… assigning stakeholder priorities to a set of requirement …. explicitly defining a set of constraints of the requirements …. using algorithms … exploring release plan solutions … selecting at least one release plan solution from the set of candidate release plan solution …" (underline emphasis added above).

As presently recited in claim 1, "… assigning stakeholder priorities … defining a set of constraints … using algorithms … exploring release plan solutions … selecting at least one release plan solution from the set of candidate release plan solution …" appears to be a subjective result rather than a result achieved through application of clear, objective criteria. Therefore, there appears to be no assured, repeatable (i.e., concrete) result. Also, there are no clear, object criteria to achieve concrete result in the claim language.

4. **As to claim 3**, the claim presently recites "… a set of release plan solutions is generated … is further qualified by applying a concordance/non-discordance principle …" (underline emphasis added above).

As presently recited in claim 3, "… a set of release plan solutions is generated … qualified by applying a concordance/non-discordance principle …" appears to be a subjective result rather than a result achieved through application of clear, objective criteria. Therefore, there appears to be no assured, repeatable (i.e., concrete) result.

5. **As to claim 11**, the claim presently recites "… selecting a release plan solution form the set of candidate release plan solutions … carried by a problem solver." (underline emphasis added above).

As presently recited in claim 11, "… selecting a release plan solution form the set of candidate release plan solutions … carried by a problem solver." appears to be a

subjective result rather than a result achieved through application of clear, objective criteria. Therefore, there appears to be no assured, repeatable (i.e., concrete) result.

6. **As to claim 12**, the claim presently recites "… carried out through a hybrid approach integrating computational intelligence and human intelligence" (underline emphasis added above).

As presently recited in claim 12, "… carried out through a hybrid approach integrating computational intelligence and human intelligence" appears to be a subjective result rather than a result achieved through application of clear, objective criteria. Therefore, there appears to be no assured, repeatable (i.e., concrete) result.

7. **As to claim 18**, the claim presently recites "… a set of near optimal and maximally distinct alternative release plan solutions is generated" (underline emphasis added above).

As presently recited in claim 18, "… a set of near optimal and maximally distinct alternative release plan solutions is generated" appears to be a subjective result rather than a result achieved through application of clear, objective criteria. Therefore, there appears to be no assured, repeatable (i.e., concrete) result.

8. **As to claims 2**, **4-10**, **13-17**, and **19-22**, they are also rejected as they do not overcome the deficiency in their respective base claims.

Claim Rejections – 35 USC § 102(b)

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102(b) that form the basis for the rejections under this section made in this office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

9. Claims 1-3, 8-17, and 19-22 are rejected under 35 U.S.C. 102(b) as being anticipated by Pär Carlshamre, (*Release Planning in Market-Driven Software Product Development: Provoking an Understanding, 2002, Springer-Verlag London Limited*) (hereinafter 'Carlshamre_Two' - art made of record)

10. **As to claim 1** (Original), Carlshamre_Two discloses a method of release planning (e.g., Abstract (1st Page), Lines 7-9 - designed, implemented and evaluated a support tool for release planning ... provoking a rich understanding of the task of release planning), the method comprising the steps of:

- assigning stakeholder priorities to a set of requirements, where the priorities are assigned by plural stakeholders (e.g., Sec. 1 Introduction, 3rd Par. - … preceded by requirements prioritization …);
- explicitly defining a set of constraints on the requirements (e.g., Sec. 1 Introduction, 3rd Par., Lines 11-21 - … requirements had interdependencies pertinent to release planning; Sec. 2.1.2. Considering Interdependencies, last Par. - ... the release coupling factor was thus defined as the ratio between the

number of broken dependencies and the number of existing dependencies within the full set of requirement ...);

- using algorithms carried out by a computer, exploring release plan solutions that satisfy the constraints and balance between stakeholder priorities of different stakeholders to generate a set of candidate release plan solutions that have a positive impact on at least one of project time, overall cost and quality (e.g., Sec. 2.1. The Release Planner Provotype, Bullet 2 - … implement a fast selection algorithm ... based on ... requirement value and cost; Bullet 3 - … Interdependencies between requirements should be considered by the algorithm …; Sec. 2.1.1. The Pragmatic Planning Algorithm, 1st Par. 3rd Par. - … a number of good suggestions are presented for the planner to consider and modify based on other aspects than just resource demands and relative values … requirements have dependencies … be accounted for …; 2.1.2. Considering Interdependencies, 1st Par., 3rd Sub-Par. – the algorithm considers requirements interdependencies to the extent that is possible from an algorithmic point of view, 5th Par. – this requirement coupling factor was defined for an arbitrary set of requirements as the ratio between the number of actual dependencies and the number of possible dependencies; Sec. 3.1. Overview, 2nd Par. – the two most important attributes pertinent to release planning are value and cost …); and
- selecting at least one release plan solution from the set of candidate release plan solutions (e.g., Sec. 2.1 The Release Planner Provotype, Bullet 6 – the algorithm

should present more than one suggestion to a release, in order for the planner to make relative judgments)

11. **As to claim 2** (Original) (incorporating the rejection in claim 1), Carlshamre_Two discloses the method in which operating on the stakeholder priorities with algorithms using a computer is carried out repeatedly after changing one or more of the constraints, requirements or stakeholder priorities (e.g., Sec. 3.2. Characteristics of the Task, 1st Par. - … release planning includes prioritizing the requirements, estimating their resource demands, and selection requirements for a certain release. These activities are usually performed continuously …)

12. **As to claim 3** (Original) (incorporating the rejection in claim 1), Carlshamre_Two discloses the method in which a set of release plan solutions is generated and the solution set is further qualified by applying a concordance/non-discordance principle (e.g., Sec. 2.1.2. Considering Interdependencies, 2nd Par. - … the judgment must be made by the planner … the planner will have to make the decision, based on their individual values)

13. **As to claim 8** (Original) (incorporating the rejection in claim 2), Carlshamre_Two discloses the method in which changing the requirements comprises actions chosen from a group consisting of:

- adding additional requirements;
- removing existing requirements;

- modifying existing requirements; and
- adjusting stakeholder priorities (e.g., Sec. 2.1.1. The Pragmatic Planning Algorithm, 3rd Par. - … a number of good suggestions are presented for the planner to consider and modify based on other aspects than just resource demands and relative values ...; last Par. - .. the search depth is limited to a specific but adjustable value …; Sec. 3.5. One Release is not Enough, last Par. – Moving around requirements between consecutive releases at a planning level stood out as very important …)

14. **As to claim 9** (Original) (incorporating the rejection in claim 2), Carlshamre_Two discloses the method further comprising the step of assigning the requirements to one of the next release, the next but one release, or unassigned (e.g., Sec. 3.5. One Release is not Enough, last Par. – Moving around requirements between consecutive releases at a planning level stood out as very important …)

15. **As to claim 10** (Original) (incorporating the rejection in claim 9), Carlshamre_Two discloses the method in which repeating the step of operating on the stakeholder priorities or value estimates with the algorithms comprises using the unassigned requirements as the requirements in the repeated step (e.g., Sec. 3.5. One Release is not Enough, last Par. – Moving around requirements between consecutive releases at a planning level stood out as very important …)

16. **As to claim 11** (Original) (incorporating the rejection in claim 1), Carlshamre_Two discloses the method in which selecting a release plan solution from the set of candidate release plan solutions is carried out by a problem solver (e.g., Sec. 2.1.2. Considering Interdependencies, 2nd Par. - … the judgment must be made by the planner … the planner will have to make the decision, based on their individual values)

17. **As to claim 12** (Original) (incorporating the rejection in claim 1), Carlshamre_Two does not disclose the method in which the method is carried out through a hybrid approach integrating computational intelligence and human intelligence (e.g., Sec. 2.1.1. The Pragmatic Planning Algorithm, 1st Par. 3rd Par. - … a number of good suggestions are presented for the planner to consider and modify based on other aspects than just resource demands and relative values … requirements have dependencies … be accounted for …; Sec. 2.1.2. Considering Interdependencies, 2nd Par. - … the judgment must be made by the planner … the planner will have to make the decision, based on their individual values)

18. **As to claim 13** (Original) (incorporating the rejection in claim 1), Carlshamre_Two discloses the method in which the set of constraints is chosen from a group consisting of precedence relationships between requirements, coupling relationships between requirements, effort, resource, budget, risk, and time (e.g., Sec. 1 Introduction, 3rd Par., Lines 11-21 - … requirements had interdependencies pertinent to release planning; Sec. 2.1.2. Considering Interdependencies, last Par. - ... the release

coupling factor was thus defined as the ratio between the number of broken dependencies and the number of existing dependencies within the full set of requirement ...)

19. **As to claim 14** (Original) (incorporating the rejection in claim 1), Carlshamre_Two discloses the method in which stakeholder priorities are represented by a numerical value representing stakeholder satisfaction that a requirement be assigned to one of three categories (e.g., Sec. 4. Design Implications for a Support Tool, Bullet 2 - … A set model, providing the ability to group requirements arbitrarily …), the categories consisting of the next release, the next but one release, and postponed (e.g., Sec. 1 Introduction, 3rd Par., Lines 11-21 - … requirements had interdependencies pertinent to release planning; Sec. 2.1.2. Considering Interdependencies, last Par. - ... the release coupling factor was thus defined as the ratio between the number of broken dependencies and the number of existing dependencies within the full set of requirement ...)

20. **As to claim 15** (Original) (incorporating the rejection in claim 1), Carlshamre_Two discloses the method in which the requirements are grouped into groups of requirements (e.g., Sec. 4. Design Implications for a Support Tool, Bullet 2 - … A set model, providing the ability to group requirements arbitrarily …) and the algorithms balance between stakeholder priorities assigned to the groups of requirements (e.g., Sec. 3.4.4. Planners Discover Properties as They Plan, 2nd Par. - …

the balance between strategic and operative value … the balance between invisible improvement s and visible features …)

21. **As to claim 16** (Original) (incorporating the rejection in claim 1), Carlshamre_Two discloses the method in which stakeholders prioritize subsets of the complete set of requirements (e.g., Sec. 1. Introduction, 3rd Par. – the selection task is normally preceded by requirements prioritization … to select requirements from the priority list …)

22. **As to claim 17** (Original) (incorporating the rejection in claim 1), Carlshamre_Two discloses the method further comprising providing on demand an answer to questions chosen from a group of questions consisting of:

- why requirements are assigned to a certain release;
- why requirements are not assigned to a certain release;
- which are commonalities in the proposed solutions; and
- which are differences in the proposed solutions (e.g., Sec. 2.1.1. The Pragmatic Planning Algorithm, 3rd Par. - … a number of good suggestions are presented for the planner to consider and modify based on other aspects than just resource demands and relative values ...; last Par. - .. the search depth is limited to a specific but adjustable value …; Sec. 3.5. One Release is not Enough, last Par. – Moving around requirements between consecutive releases at a planning level stood out as very important …)

23. **As to claim 19** (Previously Presented) (incorporating the rejection in claim 1), Carlshamre_Two discloses the method where different use cases are predefined (e.g., Sec. 2.1. The Release Planner Provotype, 3rd Par. - … illustrated by a usage scenario …)

24. **As to claim 20** (Previously Presented) (incorporating the rejection in claim 1), Carlshamre_Two discloses the method where process guidance is provided to perform the scenario use cases (e.g., Sec. 2.1. The Release Planner Provotype, 3rd Par. - … illustrated by a usage scenario …)

25. **As to claim 21** (Original) (incorporating the rejection in claim 1), please refer to claim **1** as set forth above accordingly.

26. **As to claim 22** (Original) (incorporating the rejection in claim 1), please refer to claim **1** as set forth above accordingly.

Claim Rejections – 35 USC § 103(a)

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

27. Claims 4-7, and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Carlshamre_Two in view of Harman et al., (*Search-based Software Engineering, 2001, Elsevier Science B.V.*) (hereinafter 'Harman' - art made of record)

28. **As to claim 4** (Original) (incorporating the rejection in claim 3), Carlshamre_Two does not explicitly disclose the method in which the algorithms comprise one or more of genetic algorithms, heuristic algorithms and integer programming algorithms.

However, in an analogous art of *Search-based Software Engineering*, Harman discloses the method in which the algorithms comprise one or more of genetic algorithms, heuristic algorithms and integer programming algorithms (e.g., Sec. 1 Introduction, 3rd Par. – Meta-heuristic algorithms, such as genetic algorithms (GA) … Have been applied successfully …; 6th Par. - … a need to balance competing constraints … a need to cope with inconsistency …; Sec. 3 Evaluation criteria for search-based software engineering)

Therefore, it would have been obvious to one of ordinary skill in the art, at the time the invention was made to combine the teachings of Harman into the Carlshamre_Two's system to further provide the method in which the algorithms comprise one or more of genetic algorithms, heuristic algorithms and integer programming algorithms in Carlshamre_Two system.

The motivation is that it would further enhance the Carlshamre_Two's system by taking, advancing and/or incorporating the Harman's system which offers significant advantages that software engineering is typically concerned with near optimal solution

or those which fall within a specified acceptable tolerance; it is precisely these factors which make robust meta-heuristic search-based optimization techniques readily applicable; meta-heuristic algorithms, such as genetic algorithms (GA), simulated annealing and tabu search have been applied successfully to a number of engineering problems as once suggested by Harman (e.g., Sec. Introduction, 2nd through 3rd Pars.)

29. **As to claim 5** (Original) (incorporating the rejection in claim 4), Harman discloses the method in which the algorithms use at least one objective function to evaluate release plan solutions (e.g., Sec. 1 Introduction, 2nd Par. - … software engineering is typically concerned with near optimal solution or those which fall within a specified acceptable tolerance …)

30. **As to claim 6** (Original) (incorporating the rejection in claim 5), Carlshamre_Two discloses the method in which the objective function comprises an aggregation of stakeholder priorities or value estimates (e.g., Sec. 4. Design Implications for a Support Tool, Bullet 2 - … A set model, providing the ability to group requirements arbitrarily …; Sec. 1 Introduction, 3rd Par., Lines 11-21 - … requirements had interdependencies pertinent to release planning; Sec. 2.1.2. Considering Interdependencies, last Par. - ... the release coupling factor was thus defined as the ratio between the number of broken dependencies and the number of existing dependencies within the full set of requirement ...)

31. **As to claim 18** (Original) (incorporating the rejection in claim 1), Carlshamre_Two does not explicitly disclose the method where a set of near optimal and maximally distinct alternative release plan solutions is generated.

However, in an analogous art of *Search-based Software Engineering*, Harman discloses the method where a set of near optimal and maximally distinct alternative release plan solutions is generated (e.g., Sec. Introduction, 2nd through 3rd Pars., … software engineering is typically concerned with near optimal solution or those which fall within a specified acceptable tolerance; it is precisely these factors which make robust meta-heuristic search-based optimization techniques readily applicable …)

Therefore, it would have been obvious to one of ordinary skill in the art, at the time the invention was made to combine the teachings of Harman into the Carlshamre_Two's system to further provide the method where a set of near optimal and maximally distinct alternative release plan solutions is generated in Carlshamre_Two system.

The motivation is that it would further enhance the Carlshamre_Two's system by taking, advancing and/or incorporating the Harman's system which offers significant advantages that software engineering is typically concerned with near optimal solution or those which fall within a specified acceptable tolerance; it is precisely these factors which make robust meta-heuristic search-based optimization techniques readily applicable; meta-heuristic algorithms, such as genetic algorithms (GA), simulated annealing and tabu search have been applied successfully to a number of engineering problems as once suggested by Harman (e.g., Sec. Introduction, 2nd through 3rd Pars.)

32. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Carlshamre_Two in view of Harman and further in view of Lu et al., (*Framework and Implementation of A Web-based Multi-objective Decision Support System: WMODSS, WSS03 – Applications, Products and Services of Web-based Support Systems, WSS 2003, Halifax, Canada, October 13, 2003, pp. 7-11*) (hereinafter 'Lu' - art made of record)

33. **As to claim 7** (Original) (incorporating the rejection in claim 6), Carlshamre_Two and Harman do not explicitly disclose the method in which computation of the algorithms is carried out externally from an application service provider, and stakeholder priorities are input to the computer from remote locations.

However, in an analogous art of *Framework and Implementation of A Web-based Multi-objective Decision Support System*, Lu discloses the method in which computation of the algorithms is carried out externally from an application service provider (e.g.,) are input to the computer from remote locations (e.g., Sec. 2 Multi-objective decision support and web technology, 2nd Par. - … allow analysis of multiple objectives; they use a variety of MODM (Multi-Objective Decision-Making) methods to compute efficient solution; and they incorporate user input in the various phases of modeling and solving a problems ... to consider algorithms as the focal point of decision support …; Sec. 2. Multi-objective decision support and web-technology, 4th Par. - … web-based DSS (Decision Support Systems) have reduced technological barriers and made it easier and

less costly to make decision-relevant information and model-driven DSS available to decision makers in geographically distributed organizations …)

Therefore, it would have been obvious to one of ordinary skill in the art, at the time the invention was made to combine the teachings of Lu into the Carlshamre_Two-Harman's system to further provide the method in which computation of the algorithms is carried out externally from an application service provider, and stakeholder priorities are input to the computer from remote locations in Carlshamre_Two-Harman system.

The motivation is that it would further enhance the Carlshamre_Two-Harman's system by taking, advancing and/or incorporating Lu's system which offers significant advantages that web-based DSS (Decision Support Systems) have reduced technological barriers and made it easier and less costly to make decision-relevant information and model-driven DSS available to decision makers in geographically distributed organizations as once suggested by Lu (e.g., Sec. 2. Multi-objective decision support and web-technology, 4th Par.)

Conclusion

34. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ben C. Wang whose telephone number is 571-270-1240. The examiner can normally be reached on Monday - Friday, 8:00 a.m. - 5:00 p.m., EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tuan Q. Dam can be reached on 571-272-3695. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Ben C Wang/
Examiner, Art Unit 2192
April 24, 2008

/Tuan Q. Dam/

Supervisory Patent Examiner, Art Unit 2192